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Notes on some COLEOPTEROUS REMAINS from the bone cave at Port Kennedy, Penna.

BY GEORGE H. HORN, M. D.

In company with Prof. E. D. Cope, I visited Mr. C. M. Wheatley, and made an examination of some masses of clay from which were obtained many fragments of Coleoptera. These remains were of the least destructible portions, and for the most part consisted of the original chitinous material more or less altered, yet retaining in several instances the surface sculpture.

Shortly after my visit I gave to Mr. Wheatley a list of the species as I had at that time determined them. Subsequent studies have caused me to reduce the number and at the same time recall certain names which I then gave. The reasons for this course will be given further on.

From the determinations of Messrs. Cope and Wheatley, the mammalian remains belong to the Post-Pliocene period, and geologically speaking not far removed in the past, and in fact very strongly connected with the present geological period, several of the vertebrates being identical with those now living and others very closely allied.

Studies of the distribution of our Coleoptera have led to some very curious results, which I think will bear out the supposition that many existing species have come down to us from preceding geological periods. Two species of *Cicindela* illustrate this supposition, one of them having been already fully dwelt upon by Dr. Leconte, in his address before the American Association for the Advancement of Science, Detroit, 1875. The other species is *hæmorrhagica* which occurs on the sea coast of southwestern California, extending thence in a northeasterly direction to Owen's Valley, and following the extension of the Mojave desert reaches Nevada, and finally the head waters of the Yellowstone, varying somewhat in trifling characters in their extent of distribution. This also is the border line of the Cretaceous gulf which gradually disappeared by the rise of the land and the formation of fresh water lakes, until these in turn gave place to the dry land now existing. It may be inferred that these species, as well as others which might be mentioned, are

the direct descendents probably, very little changed, of those existing during the period named.

If these deductions be correct, the inference is, that great care should be exercised in the description, or at least the naming, of Coleopterous remains. We can never expect to have more than an elytron or thorax, and it seems to me folly to give these names because they are ancient, when no one would pretend (except in rare instances), to do the same with fragments of existing species.

At the risk of some criticism from palæontological students, I prefer to follow a conservative course, and in the following pages have given names to those species which seem really to differ from those of our present fauna, and for the others have merely indicated the genera to which they seem to belong.

CYCHRUS.

C. Wheatleyi.

Of this species I have before me a flattened thorax, all the actual substance of the upper surface being present in moderately good preservation, and the large portion of a left elytron of which but a small portion of the substance remains.

The thorax although flattened bears evidence of having the disc moderately convex, the median line distinct, the transverse basal impression rather deep and the lateral margins broad, wider at base and reflexed. The hind angles are obtuse and not prolonged, the base being moderately emarginate. The sides are moderately arcuate and gradually narrowed toward the base, the widest portion of the thorax being slightly in front of the middle. A species is thus indicated resembling *viduus* but smaller, not exceeding in size the average specimens of *Andrewsii*.

The elytra are finely striate, the intervals moderately convex and apparently smooth, the striæ with moderate punctures not as closely placed as in any species on this side of the continent. The striæ are as numerous as in *viduus* or *Andrewsii*.

Thorax.—Width .24 inch; 6 mm. Length .16 inch; 4 mm.

Elytra (restored).—Width .48 inch; 12 mm. Length .66 inch; 16.5 mm.

I think there is very little doubt of the distinctness of this species from any at present existing, but it may be inferred that it is the species to which our *viduus* must look for its ancestry.

I have named the species in honor of Mr. Charles M. Wheatley,

of Phœnixville, to whom we are indebted for the exploration of the locality in which the fossil insects were discovered.

C. (minor).

Two fragmentary elytra of smaller size than the preceding, afford the only groundwork for the name above suggested. The striæ are fine and with fine punctures, the intervals feebly convex, evidently slightly rugulose, and probably, also sparsely punctulate. An impression of the scutellum remains which is broadly triangular, and not different in form from that of *Andrewsii*.

Elytra (restored).—Length .54 inch; 13.5 mm. Width (actual) .15 inch; 3.75 mm.

The form is therefore, almost exactly that of *Andrewsii*.

PTEROSTICHUS.

P. sp.

Fragments of two elytra. Elytra striate, striæ impunctured, intervals moderately convex, smooth.

A species apparently of the size of *coracinus* or *stygius* is indicated, but without more material it seems unnecessary to name it, or guess as to its affinities.

P. ? sp.

The greater portion of two elytra with the basal and apical ends wanting, indicate a form of larger size than any of our eastern species of *Pterostichus*. The elytral substance is in extremely bad state, being wrinkled and cracked in such a manner as to render a description of its surface impossible. It may be a *Lophoglossus*.

CYMINDIS.

C. aurora.

Elytra. Striæ moderately deep, indistinctly punctured, intervals irregularly, biserially punctulate, and very finely alutaceous. Length .30 inch; 7.5 mm.

The greater portion of both elytra remain, somewhat distorted by pressure and retaining much of the chitinous substance. A species is indicated closely related to *C. americana*, but somewhat larger. The punctuation of the intervals and the arrangement of the striæ near the tip, resemble so closely those of *Cymindis*, that I place the species in that genus.

CHLÆNIUS.**C. punctulatus.**

One elytron of the size and very similar to that of *C. laticollis*, from which it differs in having the striae more finely impressed and the punctures rather closer, while those of the intervals are coarser and less numerous. Length .40 inch ; 10 mm.

There can be no doubt that the generic determination is correct in this instance.

DICÆLUS.**D. alutaceus.**

Two elytra much flattened, retaining their proper position in relation to each other, remain, with but little of their actual substance, enough however to indicate the surface sculpture.

A species is indicated bearing a close relationship to *dilatatus*, but with the intervals somewhat more convex and the surface more distinctly alutaceous. The humeral carina appears to have been extremely fine and rather less elevated than in *dilatatus*.

Elytra.—Length .70 inch ; 17.5 mm. Width .40 inch ; 10 mm.

The measurement includes also the portion of the elytra covered by the base of the thorax. With proper allowance being made for flattening a species is indicated of as large size as our largest *purpuratus* but relatively narrower.

D. sp.

Another species of much smaller size than the preceding, is indicated by an impression of the greater part of both elytra and a very small fragment of one elytron, resembling *D. elongatus*. The carina appears to be of similar length and the intervals moderately convex, equal and smooth.

No measurements can be given as I have not sufficient material on which to base them, and I must also leave the species nameless.

CHÆRIDIIUM.**C. ? ebeninum.**

The remains for which the above name is suggested, consist of the greater portion of the thorax, the two elytra in a fair state of preservation and a portion of the abdominal segments. These may be described as follows :

Thorax nearly twice as wide as long, sides feebly arcuate, gradually converging anteriorly, surface sparsely and finely punctate, pleurae longitudinally finely strigose. Elytra rather wider, conjointly, than long, sides moderately arcuate and gradually narrowed to apex, disc

with seven moderately impressed striae, the outer rather distant from the margin; striae entire and nearly parallel and equidistant. Intervals coarsely but sparsely punctured. Epipleurae sparsely punctate. Abdomen with coarse punctures at the sides, smoother at middle.

Length of *thorax* .07 inch; 1.75 mm.

Length of *elytra* .14 inch; 3.5 mm.

I have been really at a loss to know to what genus to refer these remains. They were at one time considered to be *Saprinus*, but the number of the striae and their character forbid such a reference. The species seems to have been rather smaller than our *Chæridium histeroïdes*, but undoubtedly resembled it in form. I would have referred the remains to *Cunthon* near *perplexus*, but the thorax is by no means that of the genus.

PHANÆUS.

P. antiquus.

Elytra with feeble striae, intervals moderately convex, surface slightly rugulose. Abdomen smooth. Length .40 inch; 10 mm.

A species is indicated somewhat larger than *carnifex*, the elytral sculpture is however, more nearly that of *Pluto*, inasmuch as the intervals are regularly convex, and the striae not suddenly impressed at base. The remains consist of an impression with a small portion of the substance of both elytra in position, slightly separated at base by pressure so that a deceptive appearance of an elongate scutellum is presented; also the impression of the abdominal segments with a small portion of chitinous substance.

There is also the substance remaining of the greater portion of an elytron which probably belongs to the same species, in which the intervals are moderately convex and with traces of a few punctures, the striae being moderately impressed and not punctured.

APHODIUS.

A. precursor.

Elytra smooth, shining, feebly striate, striae shallow but rather wide; punctures distant, round near the apex, becoming transverse near the base, intervals flat, smooth.

A species is indicated of the size and nearly of the sculpture of *ruricola*. The scutellum is short. Length of *elytra* .10 inch; 2.5 mm.